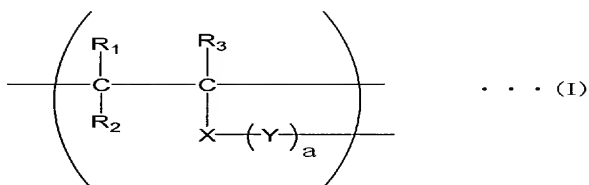


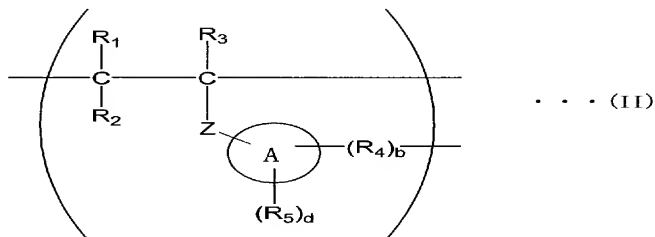
AMENDMENTS TO THE CLAIMS

1. (Original) A multi-branched polymer having repeating units represented by a formula (I):



wherein R₁ to R₃ each independently represents hydrogen or a hydrocarbon group, R₁ may be bonded to R₃ to form a ring; X represents a connecting group having a valence of 3 or higher; Y may be the same or different and each represents a functional group which may have an active halogen atom; and a is an integer of 2 or larger.

2. (Original) The multi-branched polymer according to claim 1, wherein the repeating units represented by the formula (I) are repeating units represented by a formula (II):



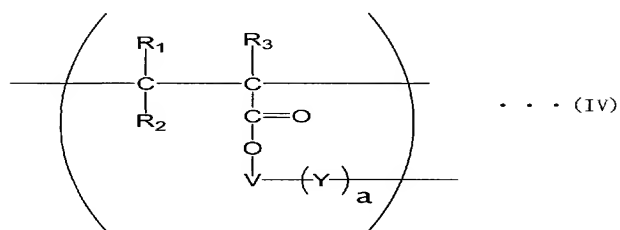
wherein R_1 to R_3 are as defined above; Z represents a single bond or a connecting group having a valence of 2 or higher; A represents an aromatic hydrocarbon group or an aromatic heterocyclic group; R_4 may be the same or different and each represents a functional group which may have an active halogen atom; b is an integer of 2 or larger; R_5 represents a halogen atom or an organic group and d is 0 or an integer of 1 or larger and R_5 may be the same or different when d is 2 or larger.

3. (Original) The multi-branched polymer according to claim 2, wherein in the formula (II), Z is a single bond; A is an aromatic hydrocarbon ring; and R_4 is a functional group represented by a formula (III):



wherein R_6 and R_7 each independently represents hydrogen, a halogen atom, an alkyl group which may have a substituent, or a linkage with other repeating units with a proviso that R_6 and R_7 do not become linkages with other repeating units at the same time.

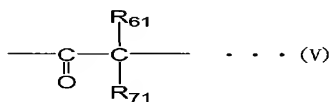
4. (Original) The multi-branched polymer according to claim 1, wherein the repeating units represented by the formula (I) are repeating units represented by a formula (IV):



wherein R₁ to R₃, Y, and a are as defined above; and V represents a connecting group having a valence of 3 or higher.

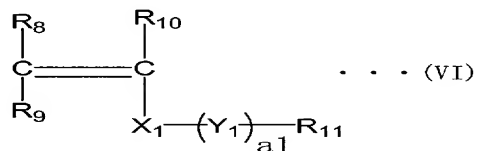
5. (Currently amended) The multi-branched polymer according to claim 4, wherein V is ~~an alkylene~~polyoxy ~~a polyoxyalkylene~~ group in the formula (IV).

6. (Original) The multi-branched polymer according to claim 4 or 5, wherein in the formula (IV), Y is a functional group represented by a formula (V):



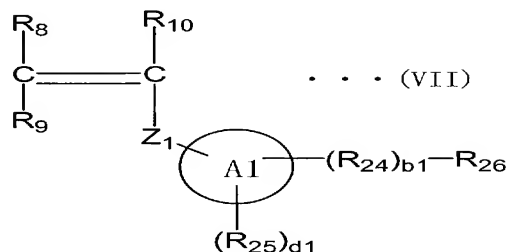
wherein R₆₁ and R₇₁ each independently represents hydrogen, a halogen atom, an alkyl group which may have a substituent, or a linkage with other repeating units with a proviso that R₆₁ and R₇₁ do not become linkages with other repeating units at the same time.

7. (Original) A multi-branched polymer obtained with a living radical polymerization method using a metal catalyst by polymerizing compounds represented by a formula (VI):



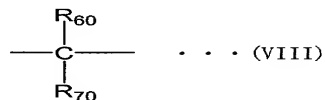
wherein R₈ to R₁₀ each independently represents hydrogen or a hydrocarbon group, and R₈ may be bonded to R₁₀ to form a ring; X₁ represents a connecting group having a valence of 3 or higher; Y₁ may be the same or different and each represents a functional group which may have an active halogen atom; a₁ is an integer of 2 or larger; and R₁₁ represents a chlorine atom, a bromine atom, or an iodine atom.

8. (Original) The multi-branched polymer according to claim 7, wherein the compounds represented by the formula (VI) are compounds represented by a formula (VII):



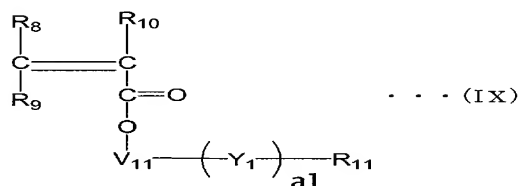
wherein R_8 to R_{10} are as defined above; Z_1 represents a single bond or a connecting group having a valence of 2 or higher; A1 represents an aromatic hydrocarbon group or an aromatic heterocyclic group; R_{24} may be the same or different and each represents a functional group which may have an active halogen atom; $b1$ is an integer of 2 or larger; R_{25} represents a halogen atom or an organic group and $d1$ is 0 or an integer of 1 or larger and R_{25} may be the same or different when $d1$ is 2 or larger; R_{26} represents a chlorine atom, a bromine atom, or an iodine atom.

9. (Original) The multi-branched polymer according to claim 8, wherein in the formula (VII), Z_1 is a single bond, A1 is an aromatic hydrocarbon group, and R_{24} is a functional group represented by a formula (VIII):



wherein R_{60} and R_{70} each independently represents hydrogen, a halogen atom, or a C1 to C6 alkyl group which may have a substituent with a proviso that R_{60} and R_{70} are not halogen atoms other than fluorine atoms at the same time.

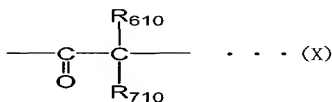
10. (Original) The multi-branched polymer according to claim 7, wherein the compounds represented by the formula (VI) are compounds represented by a formula (IX):



wherein R₈ to R₁₀ are as defined above respectively; V₁₁ represents a connecting group having a valence of 3 or higher; Y₁ may be the same or different and each represents a functional group which may have an active halogen atom; a₁ is an integer of 2 or larger; and R₁₁ represents a chlorine atom, a bromine atom, or an iodine atom.

11. (Currently amended) The multi-branched polymer according to claim 10, wherein V₁₁ is an alkylenepolyoxy a polyoxyalkylene group in the formula (IX).

12. (Original) The multi-branched polymer according to claim 10 or 11, wherein in the formula (IX), Y₁ is a functional group represented by a formula (X):



wherein R₆₁₀ and R₇₁₀ each independently represents hydrogen, a halogen atom, an alkyl group which may have a substituent, or a linkage with other repeating units with a proviso that R₆₁₀ and R₇₁₀ do not become linkages with other repeating units at the same time.

13. (Currently amended) The multi-branched polymer according to ~~any one of~~ claims claim 1 to 12 or 7, wherein a ratio (Mw/Mn) of weight average molecular weight (Mw) to number average molecular weight (Mn) of the polymer is in a range between 1.01 and 9.99.

14. (Currently amended) The multi-branched polymer according to ~~any one of~~ claims claim 1 to 13 or 7, wherein the number average molecular weight (Mn) of the polymer is in a range between 200 and 20,000,000.

15. (Currently amended) The multi-branched polymer according to ~~any one of~~ claims claim 1 to 14 or 7, wherein the multi-branched polymer is a hyperbranched polymer.

16. (Currently amended) A hyperbranched polymer which is branched by a carbon-carbon bond and has a ratio (Mw/Mn) of weight average molecular weight (Mw) to number average molecular weight (Mn) in a range between 1.01 and 9.99.

17. (Original) A hyperbranched polymer obtained by polymerizing a compound having 2 or more polymerization-initiation sites and polymerizable unsaturated bonds by a living radical polymerization method using a metal catalyst.

18. (Original) The hyperbranched polymer according to claim 16 or 17, wherein the number average molecular weight (Mn) of the polymer is in a range between 200 and 20,000,000.

19. (Currently amended) The hyperbranched polymer according to ~~any one of~~ claims claim 16 to 18 or 17, wherein the polymer has a functional group at a polymer terminal.

20. (Currently amended) A star polymer having the multi-branched polymer according to ~~any one of claims claim 1 to 15 or 7~~ or the hyperbranched polymer according to ~~any one of claims claim 16 to 19 or 17~~ as a core thereof.